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EXAMINER

NGUYEN, TAM M

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-6 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over RU-2193443.

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The RU reference discloses a method for removal of hydrocarbons from gas-vapor mixtures of oil or oil products which are formed during storage of oil or oil products. The method includes pumping of liquid medium (e.g., gasoline or kerosene) and oil products into a gas-liquid jet apparatus to form a gas-vapor mixture. The mixture is then compressed in the gas-liquid jet apparatus at the cost of energy of forced liquid medium. The mixture is then passed into a separator to separate the mixture into a gas phase stream and liquid medium stream which is recycled back to the gas-liquid jet apparatus. The gas phase stream is then passed into a column absorber wherein the stream is mixed with a cool liquid medium to reduce the contents of hydrocarbons absorbed from the gas-vapor mixture in the liquid medium. The gas-liquid jet apparatus is operated at a pressure of from 0.08 to 0.7 MPa and the liquid medium is pumped into the apparatus under 1.1 to 10.0 MPa pressure. The hydrocarbon liquid with hydrocarbons of the gaseous phase dissolved therein is fed from the adsorption column to a separator. (See page 5, lines 10 through page 9, line 12; page 10, line 1 through page 16, lines 20; page 20, lines 14-17; page 23, line 1 though page 28, line 4)

The RU reference does not specifically disclose that the liquid medium is cooled to a temperature of from -10°C to -50°C . However, the reference teaches that the liquid medium is cooled before feeding to the adsorber (see page 28, lines 1-4). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of the RU reference by cooling the liquid medium to the temperatures as claimed because it is within the level of one of skill in the art to cool the liquid medium to any temperature including the claimed temperature so that it is effective to adsorb hydrocarbons from the gas mixture.

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The RU reference does not specifically teach that the separator is maintains at a level ranging from 0.2 to 1.5 MPa. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of the RU reference by operating the separator at any pressure including the claimed pressures to produce a the liquid stream and a vapor stream.

The RU does not specifically teach that the liquid medium/the hydrocarbon liquid, which is removed from the separator, is passed into a container for storage or into the filling tank.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of the RU reference by passing the liquid medium/the hydrocarbon liquid to a store tank to be used as fuel for later on.

The RU does not disclose a step of utilizing a separator as in claims 3 and 4.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of the RU reference by utilizing a separator separate the gas stream into a warm gas and cool gas as claimed because it is within the level of one of skill in the art to further purify the gas stream by utilizing any device which is effective further remove contaminants (e.g., light hydrocarbons) from the gas before release it to atmosphere and heat exchanging the streams will conserve energy.

Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over RU-2193443 as applied to claim 1 above, and further in view of EP-0247585 A1.

The process of the RU reference is as discussed above.

The RU reference does not teach a step of further treating the gas stream from the adsorption column.

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The EP reference teaches a process for separating hydrocarbons contaminants from a vapor feed wherein a gas stream from an absorber is further treated by feeding the gas stream into a membrane zone. (See abstract; Figures 1 and 2)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of the RU reference by further treating the gas stream from the absorber with a membrane as taught by the EP reference because such step would further purify the gas stream.

Response to Arguments

The argument that the RU'443 reference does not teach a liquid medium (e.g., gasoline or kerosene is supplied by a pump and does not teach that gasoline is used as the petroleum product and hydrocarbon liquid and petroleum product filled the tank or stored in the container is not gasoline is not persuasive. The reference **clearly teaches** that the liquid medium and hydrocarbon-containing liquid (which is fed to the adsorber) is either **gasoline or kerosene** (see lines 3-5 of page 11; lines 18-20 of page 19). The petroleum product filled the tank or stored in the container is also either gasoline or kerosene.

The argument that if gasoline/kerosene is used as the liquid medium in RU'443, like the examiner supposed it, then the method for removing hydrocarbons (gasoline vapors) will be necessary to release the adsorbed gasoline vapors from gasoline by supplying heat thereto in the column 5 is not persuasive. It is the **fact** that gasoline is used as the liquid medium (see lines 3-5 of page 11; lines 18-20 of page 19).

The argument that the features mentioned in claims 1, 2, 6, and 10-12 cannot be brought to reality with the help of the technical solution taught by the RU'443 and these features cannot

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be used in this technical solution is not persuasive. The reference teaches the used of gasoline/kerosene as claimed. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by applicant. In re Linter, 458 F.2d 1013, 173 USPQ 560 (CCPA 1972); In re Dillon, 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1990), cert. denied, 500 U.S. 904 (1991).

The argument that because gasoline or kerosene vapors contain no methane and ethane, so it is not obvious to utilizing a pressure as claimed it not persuasive. The fact that the RU'443 reference teaches the use of gasoline/kerosene. It is within the level of one of skill in the art to operate the separator at any effective pressure including the claimed pressure to produce a gas stream and liquid stream.

Regarding claims 3 and 4, the argument that examiner does not provide prior art technical solutions and the results of the claimed invention are already known is not persuasive. The examiner maintains that it is within the level of one of skill to further purify the exit gas from the adsorber because of environmental issues. Using a vortex or a gasodynamic separator to separate heavy components from light components in a gas mixture is well known in the art. This vortex technology can be reviewed in Patents such as US 4,257,794; US 4,185,977 and US 3,775,988. The gas-dynamic technology can be reviewed in Patent RU 2325939.

The argument that EP'585 does not disclose that the gaseous phase after exiting from the adsorption column is fed to a membrane device is not persuasive. The gaseous phase is from the adsorption column (See Figure 2). Even if the gaseous phase is not from the adsorber, one of skill in the art would utilize a membrane to purify the gaseous phase.

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The argument that the claimed invention as compared against RU'443, it is pointed out that an additional technical effect is achievable is not persuasive. Since the **claimed process** is essentially the same as process of RU'443, it would be expected that the process of RU'443 would give similar results as argued.

Election/Restrictions

The argument that claim 1 includes the distinguishing feature "... gasoline is used as the petroleum product and hydrocarbon liquid, and prior to being fed to the absorption column the gasoline is cooled ..." and claim 14 includes the distinguishing feature "... the refrigerator, pump input or separator is connected to the gasoline supply pipeline ...". If such connection is used, the gasoline is hydrocarbon liquid, said hydrocarbon liquid being fed into the absorption column through the refrigerator and thus, the common feature of Claims 1 and 14 is **the use of the gasoline as petroleum and as hydrocarbon liquid absorbing hydrocarbons from the gaseous phase** is not persuasive. First of all, the gasoline as petroleum hydrocarbon liquid is not the common feature. As argued the separator, the storage tank, the jet device, or the adsorber can also be considered as the common feature which is taught by the RU'443 reference. If gasoline is the common feature, which is **100% not true**, and the RU' 433 reference has mention **the word gasoline**, the RU'433 reference has shown that the special technical feature linking the inventions does not provide a contribution over the prior art.

The requirement is still deemed proper and is therefore made FINAL.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAM M. NGUYEN whose telephone number is (571)272-1452. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TN

/Tam M. Nguyen/

Primary Examiner, Art Unit 1797